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ABSTRACT

Measures of state regulation of universities were studied to determine characteristics of states that may be associated with regulatory tendencies, as well as college characteristics that may protect them from regulation. The focus was academic, budgetary, and personnel regulation. Three national data sources were utilized, along with questionnaire responses from 86 public, Ph.D.-granting universities in 49 states. State variables possibly linked to regulation include: state appropriations, public college enrollments, tax effort and capacity, population growth and density, the governor's power, and powers/roles of the legislature and state education board. College variables include: age, size, constitutional autonomy, number of doctoral programs, funding, and the quality of the faculty and the study body. Six measures of academic regulation concerned state authority to: define campus mission, add new undergraduate/graduate programs, review or discontinue existing college programs, and add or discontinue departments. The seven measures of budgetary regulation include: control over expenditures after allocation, and retention and control of tuition. Personnel regulation variables include state-imposed control over: number of faculty and non-faculty positions, and salary schedules. Results of regression analysis are discussed. (SW)

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THE CORRELATES OF STATE REGULATION AND UNIVERSITY AUTONOMY

Introduction

To what extent should organizational control be centralized and to what extent should local managers have authority to operate their institutions without external regulation? This question has emerged as one of the most important issues of the 1980s and is under active review by corporations, governments and multi-campus systems alike. State and federal funds for many universities have been accompanied by regulations aimed at cost containment. Taxpayer and legislative demands for accountability and control have conspired to result in an increase in state controls, especially over public institutions of higher education. The growth in regulation and control has come from many sources: legislative, executive, and judicial. Multiple reviews of campus programs and budgets, overlapping agencies for approval of purchases, and redundant studies by executive and legislative committees have, at least in some states, been commonplace.

In the view of state officials, a degree of fiscal regulation is necessary for cost containment, and reduction of costly academic competition. In the view of most university officials, however, external control reduces campus efficiency and adaptability, as well as educational effectiveness. Most organizational behaviorists believe that an increase in monitoring activity increases operating costs, both for those doing the monitoring and for those being monitored [8]. At any rate, most administrators and faculty believe that a good deal of external oversight is both costly and unproductive. A 1984 study by Volkwein [26] found that officials at 63 of 88 public universities believe that moderate or great savings will result from

deregulation. The more heavily controlled the university, the more frequently the cost reduction was characterized as "great."

Many in higher education have decried the imposition of regulations which hamper an institution from adjusting to changing circumstances and needs. A number of publications by the American Council on Education, the Carnegie Commission on Higher Education, and the Carnegie Foundation for the Advancement of Teaching and the Sloan Commission have agreed that overregulation is wasteful.

The Carnegie Commission on Higher Education, in its 1973 report on Governance of Higher Education, presented an analysis of and recommendations for the proper distribution of authority between public control and campus autonomy [4A]. The Carnegie analysis recommended a balance of authority between campus and state in four general categories: academic affairs, financial affairs, governance, and innovation.

In 1976 the Carnegie Foundation for the Advancement of Teaching published a report on The States and Higher Education which identified five major concerns -- two of them were the increasingly centralized control of public higher education and the erosion of campus autonomy [4]. In arguing for institutional independence from "centralizers and regulators," the Carnegie report made the undocumented claim that the states which allowed their public universities the greatest freedom were the ones with the strongest universities.

The Sloan Commission on Government and Higher Education urged state governments to insist on institutional autonomy in academic affairs, personnel matters, and planning decisions [24]. The Commission also was critical of the regulatory and reporting burdens imposed by state procedures dealing with

central purchasing, financial audits, personnel administration, and control of campus generated funds, among others.

The literature does not include a great deal of analytical data. In fact, most literature on the topic is based on informed opinion rather than on research. The 1982 study by the Carnegie Foundation [5] surveyed decision-making practices in each state, pointed out the limitations of government regulation of higher education, and developed a defense of campus self-regulation. But the study stopped short of gathering evidence which would shed light on the causes and costs of regulation. Most research related to the topic of public accountability has utilized a case study approach and has focused on state experiences with program planning, budgeting and evaluation [11, 23]. Recent case studies in Colorado, Kentucky, Maryland, and Wisconsin have described changes in fiscal accountability and have expressed the hope that deregulation will produce gains in efficiency [6, 18, 19, 21]. Two recent studies by Volkwein examined State financial control practices and analyzed their relationship to measures of administrative cost and elaborateness [26] and to indices of quality [27].

An important study of State Budgeting and Financing was conducted n the mid-1970s by Glenny and the Center for Research and Development in Higher Education at U.C. Berkley [12]. Glenny reviewed the budget formulation practices of the 17 states which he studied intensively. He observed the various roles of the Governors, the state agencies for higher education, and the Legislatures and their staffs. He reported a tendency for strong governors, effective well-staffed legislatures, and regulatory coordinating agencies to be found together in the larger industrial states, and he found them to be more active participants in the budget process.

There are few environmental conditions more crucial to a university than obtaining sufficient resources through the budget process. Therefore, state characteristics, regulations, and policies which influence the appropriation and expenditure of funds constitute an important feature of the external environment.

It is possible, of course, to identify different dimensions of state regulation. Berdahl makes a distinction between procedural and substantive autonomy [2]. Levy identifies three important areas of university autonomy: academic, financial, and appointive [17]. Academic autonomy refers to a campus' ability to chart its own mission, to offer academic programs compatible with its mission, to control its courses of instruction, and to set its own standards for admission and degree requirements. Financial flexibility is possessed by universities which control the preparation and allocation of their budgets, and which are relatively free to manage revenues and expenditures with few external restrictions beyond those associated with post-audit accountability. Appointive powers are those which govern the hiring, promotion, and conditions of employment of personnel. State personnel controls typically restrict the number and type of employees, as well as the salaries they may receive.

This research paper presents scales for measuring each of these three types of Regulation. The purpose of the research is to describe state regulatory practices and to examine their relationship to various state and institutional characteristics. Viewing the university as an organization within an environment, the literature suggests that certain environmental characteristics tend to promote an atmosphere of regulation, and certain university characteristics tend to protect it. This research assembles a

variety of state characteristics which are assumed to be positively associated with regulatory tendencies, and gathers data on a number of university characteristics which presumably protect the campus and are expected to be negatively associated with the three types of regulation.

Methodology and Data Sources

The study uses national data from NCHEMS, from the U.S. Census Bureau, and from the Carnegie Foundation, as well as questionnaire responses from 86 public, Ph.D.-granting universities in 49 states. (Alaska is excluded.) Variables about the 49 states include a number of economic, social, political, and educational characteristics believed to be related to regulation: relative state appropriations, enrollments in and expenditures for public higher education, tax capacity, tax effort, population growth and density, population age, education level, and urbanization, democratic party strength, and the size of the state government. In addition, the literature was reviewed for data on the power and influence of each state governor [1, 23B], the effectiveness and professionalism of the legislature [3a], and the organizational role of the state education board, department, or commission [2, 22].[1] University characteristics which are believed to protect it and which are used as measures in the study include age, size, constitutional autonomy, Flagship status, medical/hospital facilities, number of doctoral programs, funds from state and non-state sources, the quality of the faculty [16], and ability of the student body [18, 7, 10].

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[1] More information about the various measures and their psychometric characteristics can be obtained from the author.

In order to develop a measure of Academic Regulation, access to the data in the 1982 Carnegie Foundation report was obtained [5]. The Carnegie survey reported the perceived locus of "effective authority" for various academic, personnel, and financial decisions in each state. Using the Carnegie data for "flagship institutions", an analysis was made of the 14 types of academic decisions and a score from 1 to 4 was assigned depending on whether the effective authority was judged to be at the level of the campus (1), multi-campus system (2), state coordinating agency (3), or state executive/legislative branches (4). Only eight of the 14 items demonstrated enough variance to discriminate among campuses. Since a factor analysis revealed that six of these eight formed a single cluster, the six items were used to form a scale measuring academic Regulation. Table 1 shows the Reliability analysis for the six measures in the scale of Academic Regulation (alpha = .87).

Financial and personnel Regulation are measured by a set of questions derived from the Volkwein survey of states and campuses [26, 27]. These questions gathered information about the nature of the budget allocation and expenditure process, the management of tuition and other revenues, the disposition of year-end balances, the employee appointment and payroll process, the management of both positions and funds, and the existence of position classifications and salary schedules. A combination of factor and reliability analysis resulted in the construction of the separate scales shown in Tables 2 and 3.[1]

While survey information was obtained about a wide array of transactions which reflect generally on state university "financial" and "appointive" autonomy, the items in Table 2 exhibit the most reliable indicators of state

Table 1

Reliability Analysis for the Scale of Academic Regulation

Academic Regulation (Carnegie Survey items) Reliability Coefficient (Alpha) = .87	Item/Total Correlation	Alpha if Item Deleted
State Authority to:		
1. Define Campus Mission	.61	.86
2. Add New Undergrad. Programs	.66	.85
3. Add New Grad. Programs	.77	.83
4. Review/Discontinue Existing Undergrad. Programs	.75	.84
5. Review/Discontinue Existing Grad. Programs	.74	.84
6. Add/Discontinue Department	.52	.87

Table 1A
Data on State Academic Authority
(N=49)

	Effective Authority with State Agency/Legislature/Executive	
	Number	Percent
Define Campus Mission	7	14
Add New Undergraduate Program	15	31
Add New Graduate Program	16	33
Review/Discontinue Undergraduate Program	6	12
Review/Discontinue Graduate Program	7	14
Add/Discontinue Department	4	8

Table 2

Reliability Analysis for Budgetary Regulation

	Item/Total Correlation	Alpha if Item Deleted
1. Lump sum vs line item budget	.72	.85
2. Control over Expenditures after allocation	.71	.84
3. Retention & control of tuition revenues	.66	.85
4. Retention & control of other revenues	.69	.84
5. State pre-audit of expenditures	.64	.85
6. Who issues checks for payroll and purchases	.63	.86
7. Year-end balances carried over vs. returned to state	.60	.86

Reliability Coefficient (alpha) = .87

Table 2A
Data on State Financial Regulation
States (N=49)

	Number	Percent
Lump Sum vs. Itemized Budget Allocation		
Dollars allocated Lump Sum	15	31
Dollars allocated by Object/Function	20	41
Dollars and Positions by Object/Function	14	29
State Control over Expenditures after Allocation		
Advance State Approval to shift funds	11	22
Univ. can shift within function or within object	18	37
Great Univ. flexibility to Shift	20	41
State Pre-Audit Requirements		
Elaborate (2 or more state agencies)	11	22
Moderate (one state agency)	10	20
None	28	57
Checks Issued By		
State Cuts Checks: Both Payroll & Purchases	14	29
State Cuts Checks: Either Payroll OR Purchases	6	12
Univ. Cuts Checks for both Payroll & Purchases	29	59
State Control Over Revenues		
Tuition treated as state income	18	37
Tuition retained and managed by Univ.	31	63
Most Non-tuition revenues treated as state income	8	16
Several Categories of Non-tuition revenue retained by campus or system	16	33
All Non-tuition revenues retained and managed by campus of origin	25	51
State Policy on Year-end Budget Balances		
Recovered by State Annually	25	51
Recovered by State Biennially	4	8
Retained by University	20	41

Table 3
Reliability Analysis for the Scale of Personnel Regulation

	Item/Total Correlation	Alpha if Item Deleted
State-imposed:		
1. Limit on number of faculty positions	.78	.75
2. Limit on number of non-faculty positions	.74	.76
3. Classification system for faculty positions	.38	.83
4. Classification system for non-faculty positions	.68	.78
5. Salary schedule for faculty positions	.41	.83
6 Salary schedule for non-faculty positions.	.65	.78

Reliability coefficient (alpha) = .82

Table 3A
Data on State Personnel Regulation
(N=49)

	States	
State Imposed Regulation/Control	Number	Percent
Ceiling on Faculty Positions	18	37
Ceiling on Other Positions	16	3
Ceiling on Total Positions Only	6	12
Classification System for Faculty	4	8
Classification System for Other Employees	25	51
Salary Schedule for Faculty	5	10
Salary Schedule for Other Employees	21	43

Table 4
Intercorrelations Among the Three
Types of State Regulation

	Academic	Financial
Financial	.13	
Personnel	-.16	.57

financial Regulation and the items in Table 3 tend to reflect Regulatory practices in personnel matters. Two of the items in Table 3 (dealing with a classification system and salary schedule for faculty) have a relatively low correlation with the scale, in part because their variance was small. However, they were left in the scale because of their conceptual relevance. Table 4 shows the intercorrelations among the three scales. Whereas the financial and personnel scales show a strong relationship (.57), the academic scale appears to measure something very different from the other two.

Results and Discussion

The Descriptive data on the three measures of Regulation are presented in Tables 1A, 2A, and 3A. Academic authority for making the six types of decisions contained in the academic scale most often lies with the University campus or system. In about one-third of the states the effective authority to add new graduate or undergraduate programs rests with state officials. Only 7 or fewer states effectively involve state officials in defining campus mission and reviewing or discontinuing programs and departments.

Table 2A describes state practices in terms of financial regulation. Fifteen States allocate funds in "lump sum" fashion to their public universities, whereas 14 specify both dollars and positions within object or function or both. After allocation, 38 states give their universities considerable flexibility to shift funds among budget categories without state approval. WHile the majority of states (57%) do not go to the trouble of "pre-auditing" university expenditures, 11 states have elaborate procedures involving 2 or more state agencies. The majority of states also retain and manage tuition and other revenues generated by the campus and its students, and cut their own checks for payroll and purchases. Only 8 states consider

most types of revenue to be treated as state income. Twenty states give their universities the incentive to good management which accompanies the retention of unspent funds, but the majority of states exercise a policy of reclaiming unspent state funds on an annual basis, thus forcing campus managers to spend them.

Table 3A shows the data on state personnel controls. About one-third of the states impose a cap on faculty and non-faculty positions, and six other states limit the total number of positions without distinguishing among the various employee groups. WHile few states have a classification system or salary schedule for faculty, close to half have them for other types of employees.

From a review of the literature on the topic (summarized above), it was expected that heavy regulation would be found in those states characterized by:

(a) a high degree of industrialization (tax capacity)

(b) a heavy tax burden (tax effort)

(c) a large population

(d) a high population density and urbanization

(e) a growing population

(f) an older, uneducated population

(g) strong and influential governors

(h) legislatures with strong professional staffs

(i) Democratic Party elected officials (less laissez-faire)

(j) a large number of state government employees

(k) a high proportion of state government employees (centralization)

(l) state coordinating boards which exercise regulatory powers

(m) a high proportion of state enrollments in public higher education

(n) a large proportion of state appropriations for higher education

Table 5
State Characteristics and Their Correlations with
Three Types of State Regulation
(N=49)

STATE VARIABLES	STATE REGULATION		
	ACADEMIC	FINANCIAL	PERSONNEL
ECONOMIC			
Tax capacity			
Tax Effort		.26*	
SOCIAL/DEMOGRAPHIC			
State Population			
Population Density	.26*	.25*	
Population Change (1970-80)			
Percent Population age 65+			
POLITICAL/BUREAUCRATIC			
Governor's Power (Schlesinger)			
Governor's Influence (Abney/Lauth)			
Legislative Professionalism		.28**	
Democratic Party Strength	.26*		
Number of Gov't Employees	.25*		
Proportion of Gov't Employees			
EDUCATION-RELATED			
Percent of Population without College Ed.			
Type State H.E. Agency (Berdahl)			
Type St. H.E. Agency (Millett)			
Proportion Public H.E. Enrollment	-.25*		
Proportion Expenditures for H.E.	-.32**		
Regression R^2:	.46	.45	.31

*p < .10
**p < .05

Table 6
University Organizational Characteristics and Their Correlations with Three Types of State Regulation
(N=49)

University Variables	Type of Regulation		
	Academic	Financial	Personnel
Age			
Size			
Constitutional Status		-.25*	-.36***
Flagship Status			
Faculty Quality			
UG. Quality			
Government Grants	-.35***		
Endowments and Gifts	-.36***		
Medical School/Hospital	-.29**		
Number of Doctoral Programs	___	___	___
Multiple Regression R^2:	.27	.28	.22

*p < .10
**p < .05
***p < .01

Table 5, which shows the zero order correlations valued at plus or minus .25 or more, reveals partial support for some of these expectations but not for most others. Among the economic variables the state's tax effort is positively correlated with financial and personnel regulation, but the correlation coefficients fail to achieve significance at the .05 level. Among the social and demographic variables, only population density is associated (at the .10 level) with two measures of regulation.

Among the political variables, legislative capability is significantly associated with Financial Regulation ($p < .05$) suggesting that legislatures which are well-organized and well-staffed are more apt to exert fiscal control. A state's Democratic Party strength and the size of its state government bureaucracy are positively correlated with the academic regulation measure ($p < .10$).

None of the education-related measures are positively related to the measures of regulation to any significant degree. In fact, two variables, relatively large public enrollments and expenditures for higher education, are correlated with academic autonomy rather than regulation.

These results then suggest that certain types of regulation may indeed be products of certain state characteristics: a heavy tax burden, a highly concentrated population, a well-staffed and organized legislature, a large state bureaucracy, and a strong Democratic Party. The lack of a significant relationship with the Schlesinger and Abney-Lauth measures of the Governor's power and influence is inconsistent with the expectations produced by Glenny's earlier study [12]. It may be that the Governor has relatively little to do with the academic and financial control practices which have evolved in each state. The legislature and its staff, however, appear to be significantly

associated with regulation. The variable used in this study is the sum of each state's [inverted] rank on three of the five subcategories measured by the Citizens Conference on State Legislatures: "Functionality," "Informedness," and "Independence" [3a]. The criteria of these subscales most closely approximate Glenny's description of legislative effectiveness and staff capability, and the reliability coefficient (alpha) for the 3 scales is .81.

If certain state characteristics tend to produce a regulatory climate, do universities develop measurable resistances to state regulation? The variables in Table 6 were judged to be among those qualities which made a university less likely to be heavily regulated. Again, only those values exceeding plus or minus .25 are shown. Constitutional status is the only variable significantly associated with more than one type of regulation. Constitutional autonomy does appear to provide protection from financial and personnel restrictions. A high level of research grants and endowments, and the existence of a medical school or hospital, all are negatively correlated with the academic scale. Less dependence on state funds appears to accompany campus autonomy in academic matters.

Tables 5 and 6 also show the Regression R^2 values and it is apparent that the state variables (in Table 5) account for a good deal more variance in the three regulation measures than do the university variables (in Table 6). This suggests that the external forces promoting regulation are more influential than the defenses which protect universities, at least the ones reported here.

Assumptions about causal sequence are risky in research of this kind. It is tempting to assert that all environmental variables precede all university variables, but this assertion probably ignores important interactions. For

example, the resource dependence model of organization as described by Aldrich [1A], by Pfeffer and Salancik [23A], and as modified by Hall [15], seems especially fruitful for understanding the interaction between a university and its environment. Organizations require resources and must interact with those who control those resources. The model emphasizes the role of managers both in analyzing the external demands on the organization and in actively attempting to alleviate the constraints of the setting in which the organization is embedded [32]. Over time, organizations and their managers attempt to manipulate their environments and structure themselves to acquire sufficient resources for accomplishing their major goals. The amount of regulation and control by state government constitutes an important force which imposes constraints and which shapes the strategic choices made by university management.

It is probable, therefore, that within the interactions between public universities and state governments there are forces operating both for greater regulation and for deregulation. For example, by improving its quality and becoming less dependent on the state for funds, a university can instill a feeling of pride and confidence. This in turn reduces the pressure for regulatory control.

At any rate, the data in Tables 5 and 6 suggest that the state legislature has the strongest role in creating the financial controls imposed on universities and that an institution's constitutional status and external funding success provide the best immunity. This conclusion is partially supported by the data in Table 7. When the major variables in the study are regressed against the three measures of regulation, the resulting beta weights confirm the importance of the legislature and of federal grants, but not

Table 7

Regression Beta Weights
for the Three Measures of Regulation

	Academic	Financial	Personnel
State Variables			
Legislative Professionalism	.02	.41*	.23
Population Density	.10	.25	.37*
Government Employees	.30	-.03	.09
Tax Effort	.01	.13	.17
Democratic Party Strength	.12	.14	.11
Public H.E. Enrollment per Thous.	-.07	.09	.13
Public H.E. Expenditures per Capita	-.20	.26	.26
University Variables			
Constitutional Status	.05	-.11	-.26
Size	.08	-.57*	-.23
Federal Grants	-.13	-.52*	-.01
Endowment and Gifts	-.12	-.02	-.04
Medical School/Hospital	-.16	.03	.08
Faculty Quality	-.17	.62*	-.22
R^2 =	.33	.37	.35

*p < .05

constitutional status and institutional wealth. Other variables with statistically significant beta weights are population density (positively associated with personnel restrictions), size (negatively associated with financial controls), and faculty quality (positively associated with financial controls). While the remaining beta weights are, for the most part, in the expected direction, they do not achieve statistical significance (at the .05 level).

A note of caution is appropriate. The measures developed in this study are crude reflections of complex phenomena which result from a number of influences, both structural and idiosyncratic. The measures are conceptually and statistically defensible, but they cannot be taken as a complete picture. Comparative data need to be gathered on other relevant economic, social and political conditions in each state. Moreover, the population for this study is limited to public, doctoral granting, research universities. This limitation was made for the purpose of minimizing the confounding effects of institutional diversity. There are wide variations in the structure and mission of other types of institutions, and wide variations in state control practices for differing types of campuses within the same state. For example, the states of New Jersey and Vermont have much more severe regulatory practices for their state colleges than they do for their public universities. The discussion throughout this study, therefore, should not be generalized beyond the population of public, Ph.D.-granting universities.

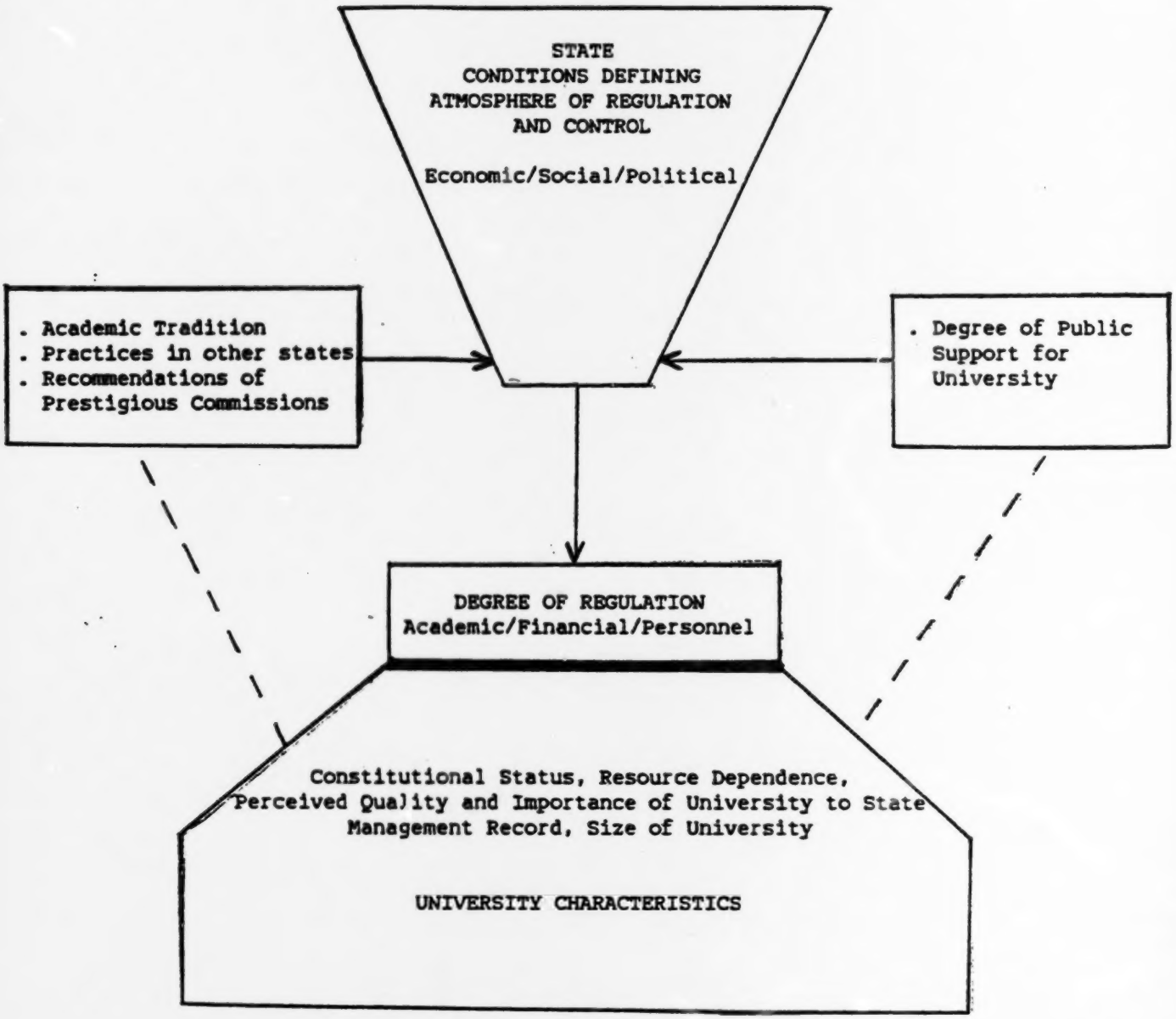
Most research in higher education is hampered by a dearth of casual models, and the examination of state policy outcomes represents an important and fruitful area for such work. The broad assessment of the influences of structural characteristics used in this research needs to be confirmed by longitudinal studies which focus on particular states and their universities.

As a conceptual guide to future research on state regulation, Figure 1 presents an exploratory model. In the model, various state characteristics influence the regulatory climate in each state. Various economic, social, and political factors promote conditions which either favor regulation or reduce the need for it.

The amount of regulation exerted on universities, however, depends also on the public attitude toward higher education in general and toward the university in particular. In its environmental interactions, a campus is able to have an impact on the way it is perceived and regulated. Presumably, a state which is proud of its public university, and which perceives it to be important and useful, is less likely to constrain its management. On the other hand, a record of mismanagement or scandal is likely to increase the degree of regulation. Finally, the regulatory relationship is also influenced by national academic customs and by the regulatory practices in other states.

This model represents an initial attempt to provide a framework for developing better measures, and for examining the regulatory relationships between public universities and the state governments which support them.

Figure 1
TOWARD A MODEL



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